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Bird migration data from a mangrove swamp near Santiago de Cuba

by
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Abstract: The avifauna of a mangrove swamp was studied by a 4-day ringing camp and field observations along the Caribbean coast in November 1992. 66 bird species were recorded in the studied area, mostly in the two characteristic habitat, the mangrove forest and the salty lagoon. The most numerous Passerines in the mangrove were *Seiurus noveboracensis* and *Dendroica petechia*. In the salty lagoon the two dominant species were *Calidris pusilla* and *Himantopus mexicanus*. Some rare birds of the area were also recorded, like *Anas americana*, *Limnodromus griseus* and *Micropalama himantopus*.
Key words: mangrove swamp, salty lagoon, bird ringing, migration, biometrical data

Introduction

Close to the second largest Cuban city Santiago de Cuba a new mangrove forest has developed naturally in the last decades. The birds of the area have been studied by Melián Hernández since 1990, but there are no detailed publications about this area (Melián Hernández *et al.* 1993). Our present paper is rather a preliminary report about the avifauna living in this mangrove swamp based on observation and banding data obtained by a few days study camp in November 1992.

Material and methods

The study area

The studied mangrove swamp area, San Miguel de Parada, is situated only a few kms SW of Santiago de Cuba. It is a lagoon-system along the west coast of the long gulf of the Caribbean sea. Based on principal ecological characters we divided the studied area into two main parts. One of them is covered by real mangrove forest, while the other one is a wide, flat salty lagoon with sandy soil. It is also bordered partly by mangroves.

All the mangrove trees of the studied area belong to the same species, *Avicennia nitida*. The central parts of the mangrove forests are well developed and have closed canopies. The trees are 12-18 m high. That part of forest has nearly open interior, without under-growths. Along the edge zone where the tide effect is less, the same species of mangrove trees form a semi-open swampy vegetation, with scattered mangrove bushes.

The central part of the second area is about 1 km^2 open, salty lagoon covered by shallow water during the high tide. It is separated from the sea-gulf by a few hundred meter wide mangrove forest.

The area is bordered in the south-west by the small river, Rio Parada and in the north by dry broken ground covered with rural vegetation.

The weather was nearly the same all the four days. The temperature was between 30 C maximum and 24 C minimum. There was very little wind or it was mostly calm. There was only a small rain on 12 Nov., otherwise it was sunny and dry, although north of the studied area above the mountains Sierra Maiestra every day was cloudy and rainy.

Methods

With the object of our main programme mistnets were used to catch shorebirds and waterfowls. Besides that songbird countings were performed in some mangrove areas, and a total counting in the open salty lagoon on 14 November (Table 4).

Results

During the 4-day period, altogether, 66 bird species belonging to 25 families were recorded. Among them there are 20 families with 49 species (74 %) belonging to the groups of non-Passerines, and 5 families with 28 species (26 %) belonging to the Passerines birds.

The wetland San Miguel de Parada is very important as a wintering habitat for many North-American migrants and also important as a resting site on their migration routes.

The two dominant non-Passerine orders were the Charadriiformes with 22 species, and the Ciconiiformes with 10 species. From the point of view of avifaunistics, there were some important records for this area, these are as follows: *Anas americana*, *Accipiter striatus*, *Charadrius wilsonia*, *Cataptrophorus semipalmatus*, *Calidris mauri*, *Limnodromus griseus*, *Micropalama himantopus*, *Gelochelidon nilotica*, *Rynchops nigra*, *Colaptes auratus*.

After our fieldwork in San Miguel de Parada we can support the idea that this wetland has an international importance and should be listed as a Ramsar-site.

Detailed list of species:

Pelecanidae

Brown Pelican ***(Pelecanus occidentalis)***

1 juv. specimen was recorded in the nearby gulf on 14 Nov.

Ardeidae

Great Blue Heron ***(Ardea herodias)***

Only two specimens were observed. One in the mangrove forest on 13 Nov., and the other one in the nearby gulf on 15 Nov.

Green Heron ***(Butorides virescens)***

1 specimen around the hotel of university in the middle of the city Santiago de Cuba on 12 Nov. One specimen along the small river Rio Parada on 14 Nov.

Little Blue Heron ***(Florida caerulea)***

Only blue colour phase was observed. 2+1+1+1 were flying over the mangrove swamp close to the canopy on 13 Nov. One specimen was recorded on 14 Nov.

Cattle Egret ***(Bubulcus ibis)***

One was recorded on 13 Nov., two specimen on 14 Nov.

Great White Egret ***(Casmerodius albus)***

1+1 were recorded on 13 Nov. They were roosting in the mangrove canopy. 1+1 were observed at the nearby sea-gulf on 15 Nov. They were fishing standing at the shallow edge of the water.

Snowy Egret ***(Egretta thula)***

3+4 birds arrived from NW flying 30m high and landed in the scattered part of mangrove forest for foraging in the morning of 15 Nov.

Louisiana Heron ***(Hydranassa tricolor)***

1+1 specimen were recorded on 13 Nov., and another one on 15 Nov. One was captured by mistnet on 13 Nov.

Least Bittern ***(Ixobrychus exilis)***

1 specimen was observed in open mangrove forest by L. Melián on 13 Nov.

Threskiornithidae

Glossy Ibis ***(Plegadis falcinellus)***

Only one record. A small flock of 4 birds was flying over the mangroves on 13 Nov.

White Ibis ***(Eudocimus albus)***

There were 5 specimens, and later one juvenile in the mangrove forest near the estuary of the Rio Parada.

Anatidae

Blue-winged Teal ***(Anas discors)***

13 specimens were captured and measured during the 4 day period (Table 1). One female was captured 13 Nov., which was banded in the same site on 12 Dec. 1991.

American Widgeon ***(Anas americana)***

1 male in nuptial plumage was shot for the collection of Natural History Department of the Cuban Academy of Sciences in Santiago de Cuba on 13 Nov. The bird arrived after sunset and landed outside the mangrove area in a small freshwater pond. This was the first record of this species for the studied area during a 3-year investigation period, which started in 1990.

Shoveler ***(Anas clypeata)***

One specimen was captured and measured on 12 Nov. This was the only record of this species.

Cathartidae

Turkey Vulture ***(Cathartes aura)***

A few specimens were always seen soaring 100-300 m high. There were 16 ones together soaring on 14 Nov. and 86 on 15 Nov.

Figs 1-2. San Miguel de Parada, typical mangrove swamp with homogeneous mangrove forest (*Avicennia nitida*)

Figs 3-4. Northern Jacana (*Jacana spinosa*) a characteristic bird species in freshwater swamps in San Miguel de Parada. 3 = adult; 4 = juvenile (Photos by A. Bankovics)

Table 1. Measurements of Water Fowls captured by mistnets in San Miguel de Parada (m = male, f = female)

Species	sex	weight g	length mm	wing mm	tail mm	bill mm	tarsus mm	date
A. americana	m	610	490	256	115	39	49	13 Nov.
A. discors	f	350	390	187	80	40	36	12 Nov.
	m	390	390	189	79	43	36	
	f	390	382	180	66	44	34	
	f	384	385	180	71	43	37	
	f	360	375	183	65	42	35	12 Nov.
	m	406	390	190	75	43	40	13 Nov.
	m	390	420	190	75	43	37	
	f	304	375	175	75	40	35	13 Nov.
	f	365	405	185	78	42	39	14 Nov.
	f	360	400	190	84	43	36	
	f	312	360	180	72	42	36	
	m	402	400	192	84	42	35	
	f	320	411	200	71	44	32	14 Nov.
A. clypeata	m	640	510	255	100	69	46	12 Nov.

Accipitridae

Sharp-shinned Hawk ***(Accipiter striatus)***

Only one record. One specimen was flying over the lagoons and the mangrove-forest 8 a.m. on 13 Nov. Probably it was not the endemic subspecies, but a North-American migrant *Accipiter striatus relax.*

Falconidae

Pigeon Hawk ***(Falco columbarius)***

1 female sat in the top of the highest tree along the edge of the lagoon on 12 Nov. There were a few-weeks old remains of another female specimen under the same tree. It was probably shot by hunters who regularily visited the area. One specimen was flying over the lagoone at 9 a.m. 13 Nov. All the birds (*Tringa flavipes, Himantopus mexicanus*, etc.) flushed up from it.

Phasianidae

Bobwhite ***(Colinus virginianus)***

L. Melián heard the voice of two specimens in the morning of 13 Nov. It is a resident species in small number in the dry part of the studied area covered by ruderal vegetation.

Rallidae

Common Gallinule ***(Gallinula chloropus)***

It is a common resident species in the lagoons. They are often sitting and climbing in the canopy of mangrove trees.

Jacanidae

Jacana ***(Jacana spinosa)***

One family, 2 adult and 2 young birds were regularily seen in a small fresh-water pond covered by sedge. This habitat was separated from the mangrove swamp.

Charadriidae

Semipalmated Plover ***(Charadrius semipalmatus)***

There were ca. 60 specimen partly in separated small groups, partly scattered among the 420 *Calidris pusilla*, which feeding and moving was driven by the coming high tide in the salty lagoon on 14 Nov.

Wilson Plover ***(Charadrius wilsonia)***

There were 6+2+8 specimens in loose flocks separated from the other waders in the salty lagoon on dry sandy soil on 14 Nov.

Killdeer ***(Charadrius vociferus)***

Single birds or small troops of 2-7 birds regularly occured in the lagoons, covered by shallow water (0-5 cm). They preferred the open areas. In the area of about 2 hectare there were 6+2 on 12 Nov., and 7+3+1+1 on 13 Nov.

Gray Plover ***(Pluvialis squatarola)***

1+1 feeding and 16 roosting in flock at 11.30 a.m. in the lagoon covered with shallow water on 14 Nov.

Recurvirostridae

Black-necked Stilt ***(Himantopus mexicanus)***

It is a common and numerous wader of the area. They prefer any type of open or semi-open parts of lagoons or mangrove clearings to feed, but they are more numerous in the large, open salty lake, where 88+2+2+122 concentrated on 14 Nov. This species captured by mistnets, altogether 6 specimens (Table 2). There was a recaptured male individual among them, which was also banded in the same site on 29 Oct. 1992.

Scolopacidae

Common Snipe ***(Gallinago gallinago)***

3 specimens were captured by mistnets (Table 2).

Spotted Sandpiper ***(Actitis macularia)***

1+1 specimens were recorded flying above mangroves on 13 Nov. and 2 were seen along the small river Rio Parada on 14 Nov.

Solitary Sandpiper ***(Tringa solitaria)***

1 specimen was feeding at the edge of a small pond with 20 by 15 m water surface in the semi-open part of the mangrove forest.

Greater Yellowlegs ***(Tringa melanoleuca)***

Single specimens or a small troops of 2-4 birds regularily fed in small lagoons among mangroves. 2 specimens were feeding on the beach of the sea-gulf, and 4 in the lagoon under scattered mangrove trees on 15 Nov. One specimen was caught by mistnet on 13 Nov.

Lesser Yellowlegs ***(Tringa flavipes)***

One of the commonest waders of the area. It is more numerous in the open salty lagoon, altough many were captured in the small open ponds in the mangroves, even in semi-open mangrove forests. 36 gathered in a midday roost in a shallow pond in the mangroves on 14 Nov. There was a roost in a shallow pond in the mangroves on 14 Nov and at the same time there was a roosting flock of 126 birds in the salty lagoon.

Willet ***(Catoptrophorus semipalmatus)***

1+2 specimens were seen in winter plumage at the semiopen salty lagoon with scattered short mangrove-bushes. Later 3 birds were moving together. All specimens were very shy.

Least Sandpiper ***(Calidris minutilla)***

Few birds were seen everywhere in the shallow mangroves-lakes. Two flocks (116+57) were feeding in the rising water of the high tide in the open salty lagoon on 14 Nov.

Semipalmated Sandpiper ***(Calidris pusilla)***

Unlike the above mentioned species, it is often seen on the ground of the closed mangrove-forest feeding in the shallow water. E.g. along the same 50 metre long pass we found 1+2+1 specimen on 12 Nov, and 2+4+1+3 on 13 Nov. A numerous roosting flock of 420 birds was recorded in the open salty lagoon at 10.50 am and feeding was driven by the spreading shallow water of the high tide of 12.10 pm. on 14 Nov.

Western Sandpiper ***(Calidris mauri)***

There were 9+3 specimens at the edge of the flock of 420 *Calidris pusilla* on 14 Nov.

Short-billed Dowitcher ***(Limnodromus griseus)***

One specimen was observed in grey winter plumage at the edge of the mangrove forest, where the water was 5 cm deep in a semi-open lagoon, covered by short mangrove bushes.

Stilt Sandpiper ***(Micropalama himantopus)***

1 juv. specimen captured by mistnet and banded at 17.00 on 12 Nov. Another specimen was observed in a shallow (6 cm) open lagoon between mangrove bushes. It was companied with one, later two *Tringa flavipes*. This was an adult, and still had little remains of its summer plumage. The cheek was still rufous brown.

Although Garrido & Garcia Montana (1975) mentioned it as rare winter visitor in Cuba, Marchant *et al.* (1986) have not marked Cuba as its wintering place. Our record shows that these two birds were passage migrants, because we did not find them or any others in the area during the next days.

Laridae

Laughing Gull (Larus atricilla)

9 specimens were sitting in the mixed midday roosting flock of birds in the open salty lagoon on 14 Nov.

Gull-billed Tern ***(Gelochelidon nilotica)***

One specimen in winter plumage was roosting among other gulls and terns (19 *Thalasseus sandvicensis*, 7 *T. maximus*, 9 *Larus atricilla*, 2 *Rynchops nigra*) later searching for food on wings above shallow water in the salty lagoon on 14 Nov. (Table 4).

Royal Tern ***(Thalasseus maximus)***

3+4+2 specimens were sitting in a flock of mixed-species roosting birds in the salty lagoon on 14 Nov. There were about 12 birds searching for food above the nearby sea-gulf at the same time.

Sandwich Tern ***(Thalasseus sandvicensis)***

Garrido & Garcia Montana (1975) mentioned it as a rare winter visitor, between 26 Nov. and 7 April. We recorded several specimens on 14 Nov., wich is an early data for this species. There were 19+2 specimens in a mixed roosting flock of birds, and another 16 birds separated in the salty lagoon on 14 Nov.

Table 2. Measurements of the captured shorebirds in San Miguel de Parada

Species	weight g	length mm	wing mm	tail mm	bill mm	tarsus mm	date
Jacana spinosa	125	245	135	40	35	60	15 Nov.
	91	230	130	46	35	62	15 Nov.
H. mexicanus	160	350	206	73	60	106	12 Nov.
	204	350	216	71	64	123	12 Nov.
	114	320	215	72	60	95	12 Nov.
	114	361	216	70	67	113	13 Nov.
	149	350	216	74	64	106	13 Nov.
Tringa flavipes	70	260	150	70	36	55	12 Nov.
	72	265	146	67	38	55	
	106	252	151	60	37	55	
	93	265	151	63	37	57	
	95	250	150	60	36	56	
	90	260	158	70	36	52	
	100	271	160	70	36	57	12 Nov.
	66	250	160	67	36	57	13 Nov.
	56	255	152	65	37	53	
	59	255	150	60	37	55	
	54	250	138	65	38	51	
	74	240	143	60	34	50	
	69	255	155	65	35	50	
	73	265	144	65	38	53	13 Nov.
average:	76.9	257	150.6	65	36.5	54	
T. melanoleuca	166	350	195	88	54	68	13 Nov.
G. gallinago	102	260	126	58	67	35	13 Nov.
	100	290	135	59	72	39	14 Nov.
	90	260	127	56	64	32	14 Nov.
L. griseus	100	275	151	56	62	37	14 Nov.
C. minutilla	19	140	90	40	19	22	15 Nov.

Rynchopidae

Black Skimmer *(Rynchops nigra)*

2 birds were roosting accompanied with *Thalasseus sandvicensis*, *Th. maximus*, *Larus atricilla* and *Gelochelidon nilotica* in the salty lagoon. There were 2 other specimens in feeding flight above the water in the nearby sea-gulf on 14 Nov.

Columbidae

Mourning Dove *(Zenaida macroura)*

It is a common bird of the area. It is breeding and roosting in the mangrove forest, feeding in the surrounding dry areas. There were 30 birds roosting in mangrove canopies on 12 Nov. Some were seen every day.

White-winged Dove *(Zenaida asiatica)*

Only one specimen was observed during the four days. It was feeding in a small vegetable garden accompained with 5 *ZenaiDa macroura*. After flushing the flock were sitting in the canopy of the nearby trees.

Common Ground-Dove *(Columbina passerina)*

Although seldom seen in the mangroves, one was caught by mistnet on 14 Nov. It prefers the dry areas outside but just along the mangrove swamps. There were recorded 3+1+1 on 13 Nov.

Table 3. The number of birds belonging to Charadriiformes species in the salty lagoon and surrounding area in San Miguel de Parada on 14 November 1992.

Species	open salty lagoon	mangrove forest	sea golf	summary
Himantopus mexicanus	90 + 2 + 122			214
Pulvialis squatarola	1 + 1 + 161			18
Charadrius semipalmatus	12 + 60			72
Charadrius wilsonia	6 + 2 + 8			16
Charadrius vociferus	2 + 1 + 1 + 3			7
Tringa melanoleuca			2	2
Tringa flavipes	126			126
Cataptrophorus semipalmatus	1 + 2			3
Actitis macularia		1 + 1		2
Limnodromus griseus	1			1
Calidris pusilla	420			420
Calidris mauri	9 + 3			12
Calidris minutilla	116 + 57			173
Larus atricilla	9			9
Gelochelidon nilotica	1			1
Thalasseus maximus	2 + 7		12	21
Thalasseus sandwicensis	37			37
Rynchops nigra			2	2

Cuculidae

Great Lizzard Cuckoo ***(Saurothera merlini)***

We heard only the voice of one specimen from dense thicket along a creek on 14 Nov.

Smooth-billed Ani ***(Crotophaga ani)***

It is a common bird of the area in small numbers. They were found only at the edge of the mangrove swamps and outside of it. There were 2+3+3 around our camp on 13 Nov. We counted 17 specimens in a 10 ha area on 14 Nov.

Strigidae

Short-eared Owl ***(Asio flammeus)***

One was flushed up at noon from dry area covered by tall grass. Another one was captured by mistnet at the same day at 19.00 at the edge of mangrove forest above shallow water (14 Nov.). It was on the bottom of the mistnet 50 cm above water.

Alcedinidae

Belted Kingfisher ***(Ceryle alcyon)***

There were 1+1 specimens along the Rio Parada under the mangroves. Another one was flying above dry open area at the same day, 14 Nov.

Picidae

Common Flicker ***(Colaptes auratus)***

1 female specimen was collected at the edge of the mangrove area from *Acacia* trees.

Hirundinidae

Cave Swallow ***(Petrochelidon fulva)***

There was a slow migration to SW in the morning of 13 Nov. 3+1+2+1+3+1+1+2 specimens were flying over our camp during a 20 minute period between 7.10 and 7.30 a.m.

Mimidae

Mockingbird ***(Mimus polyglottos)***

Like *Drives atroviolaceus*, it is common in suburbs and around outskirts of Santiago de Cuba, but avoids the natural mangrove forests. One pair was regularily seen at the edge of the mangroves.

Parulidae

Black-and-White Warbler ***(Mniotilta varia)***

This was a sporadic but rather common bird of the studied area. 1+1+4 specimens were seen on 12 Nov. 1+1 on 13 Nov. and 1 specimen on 15 Nov. They were foraging mostly in low parts (0.5-1.5 m) of the mangrove tree trunks and in bushes.

Northern Parula ***(Parula americana)***

It was not common in the study period. Only one specimen was seen in a mixed (16 individuals of 7 species) Parulidae foraging group, on 13 Nov. It was feeding in the canopy of the mangrove.

Table 4. Measurements of some birds captured in San Miguel de Parada

Species	sex	weight g	length mm	wing mm	tail mm	bill mm	tarsus	date
C. passerina	f	40.1	170	85	60	11	21	15 Nov.
Asio flammeus	f	350	330	300	140	37	55	14 Nov.
Clopates auratus	f	101	285	140	105	32	35	14 Nov.
D. petechia	m	10.5	140	64	54	10	23	13 Nov.
D. petechia	f	10.5	130	62	52	11	24	13 Nov.
D. petechia	juv.	7.5	120	60	47	9	21	13 Nov.
S. novebroacensis	f	16	145	70	50	12	24	13 Nov.
S. novebroacensis	f	19	150	75	60	1	22	13 Nov.

Yellow Warbler ***(Dendroica petechia)***

It was very common both along the edge of the mangrove forest or inside the semi-open mangrove. This was the dominant species with 5 individuals also in the foraging Parulidae group mentioned above.

Cape May Warbler ***(Dendroica tigrina)***

It was regularly seen in small numbers mostly in edge of mangrove. We recorded 2 specimens on 12 Nov., 3 specimens on 13 Nov. and 2 female, 1 male on 14 Nov.

Black-throated Blue Warbler ***(Dendroica cearulescens)***

Only one female was seen on 13 Nov.

Yellow-throated Warbler ***(Dendroica dominica)***

Only 1 female was observed on 13 Nov. It was searching for food.

Prairie Warbler ***(Dendroica discolor)***

1 juvenile and 1 adult were observed on 12 Nov., 2 specimens on 13 Nov. and 1+1 specimen on 14 Nov.

Palm Warbler ***(Dendroica palmarum)***

This is the commonest migrant of Parulidae, all over Cuba, although it was only moderate numbers in the studied area. We recorded only 1 specimen on 12, 1 specimen on 13, 2 specimens on 14 and 5 specimens on 15 Nov.

Northern Waterthrush ***(Seiurus noveboracensis)***

It was the commonest and most characteristic bird species of the mangrove forests. During the one-month study tour in Cuba, A. Bankovics has not found this species anywhere else, only in the mangrove forests. Sanchez *et al.* (1991) found it also as a very common wintering bird in the mangrove forests of Cayo Levisa. We counted 8 specimens in an 100m by 25m area of a habitat of mangrove forest with 8-12 m high trees and interrupted by small clearings.

Common Yellowthroat ***(Geothlypis trichas)***

It avoided the mangrove forests since it has rather open ground level without thick bushes. But there were 3 of them in the dense *Typha angustifolia* vegetation of a nearby small freshwater pond on 15 Nov.

American Redstart ***(Setophaga ruticilla)***

Rather common bird along the edge of the mangrove or inside the forest mostly in the canopy.

Icteridae

Greater Antillean Grackle ***(Quiscalus niger)***

It was rarely seen in the studied area. There were recorded 2+1 specimens on 12 Nov. One was captured by mistnet on 15 Nov.

Cuban Blackbird ***(Dives atroviolacea)***

This endemic bird of Cuba is rather rare in the studied area, although occurs in the city. 1 specimen in the canopy of street trees near the hotel of the university in the middle of Santiago de Cuba on 12 Nov.

Tawny-shouldered Blackbird ***(Agelaius humeralis)***

9+3 were flying over the area on 12 Nov., and 2 other specimens were recorded on 15 Nov.

Emberizidae

Yellow-faced Grassquit ***(Tiaris olivacea)***

It is a sporadic rare bird of the studied area. We found only one pair of it on 14 Nov.

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